Bottleneck Analysis in Manufacturing Training Course

Professional Development Training Course Outline

Category	Manufacturing	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

In today’s hyper-competitive manufacturing landscape, identifying and eliminating production constraints is critical for achieving operational excellence, lean manufacturing, and continuous improvement. Bottleneck Analysis is a powerful technique used to detect process inefficiencies that limit throughput, increase cycle time, and reduce overall productivity. Bottleneck Analysis in Manufacturing Training Course equips professionals with cutting-edge tools and data-driven strategies, Industry 4.0 insights, and real-time analytics techniques to uncover hidden constraints and optimize manufacturing workflows.

This course blends Lean Six Sigma methodologies, predictive analytics, value stream mapping (VSM), and AI-driven production insights to help organizations improve efficiency and profitability. Participants will learn how to systematically identify bottlenecks, apply root cause analysis, and implement sustainable solutions using Kaizen, Theory of Constraints (TOC), and digital transformation tools. By the end, learners will gain the expertise to transform production lines into high-performing systems.

Programme Curriculum

Bottleneck Analysis in Manufacturing Training Course

Introduction

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Course Duration

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Course Objectives

1. Understand Bottleneck Analysis techniques and their impact on production efficiency
2. Apply Lean Manufacturing principles to reduce waste and improve flow
3. Utilize Theory of Constraints (TOC) for process optimization
4. Conduct Value Stream Mapping (VSM) for identifying inefficiencies
5. Implement Root Cause Analysis (RCA) using data-driven approaches
6. Leverage Industry 4.0 technologies for real-time bottleneck detection
7. Improve Overall Equipment Effectiveness (OEE) metrics
8. Apply Kaizen and Continuous Improvement strategies
9. Use Predictive Analytics and AI tools in manufacturing optimization
10. Enhance Production Planning and Scheduling efficiency
11. Develop Smart Factory optimization techniques
12. Improve Supply Chain and Workflow integration
13. Build High-performance manufacturing systems with sustainable solutions

Target Audience

1. Manufacturing Engineers
2. Production Managers
3. Operations Managers
4. Lean Six Sigma Practitioners
5. Industrial Engineers
6. Quality Assurance Professionals
7. Supply Chain Managers
8. Plant Supervisors & Team Leaders

Course Modules

Module 1: Introduction to Bottleneck Analysis

- Definition and importance of bottlenecks
- Types of bottlenecks in manufacturing systems
- Impact on throughput and efficiency
- **Case Study:** Key performance indicators (KPIs)
- Introduction to Lean and TOC

Module 2: Identifying Bottlenecks

- Process mapping techniques
- Data collection and analysis
- Cycle time vs takt time analysis

- **Case Study:** Using real-time production data
- Identifying hidden constraints

Module 3: Value Stream Mapping (VSM)

- Current state mapping
- Future state design
- Waste identification (Muda)
- Flow optimization strategies
- **Case Study:** Integration with Lean tools

Module 4: Root Cause Analysis

- Fishbone diagram (Ishikawa)
- 5 Whys technique
- **Case Study:** Pareto analysis (80/20 rule)
- Failure Mode and Effects Analysis (FMEA)
- Data-driven decision making

Module 5: Theory of Constraints (TOC)

- TOC principles and applications
- Drum-Buffer-Rope system
- **Case Study:** Constraint exploitation strategies
- Subordination and synchronization
- Continuous improvement cycle

Module 6: Digital Transformation & Industry 4.0

- Smart manufacturing systems
- IoT in production monitoring
- AI and predictive analytics
- **Case Study:** Real-time dashboards and KPIs
- Automation and robotics integration

Module 7: Performance Optimization

- Improving OEE metrics
- Reducing downtime and variability
- Production scheduling optimization
- **Case Study:** Workforce productivity improvement
- Continuous monitoring systems

Module 8: Implementation & Sustainability

- Change management strategies
- Kaizen and continuous improvement culture
- Performance benchmarking
- **Case Study:** Standardization and documentation
- Long-term sustainability planning

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

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